

From: [McAtee Nancy](#)
To: [Smith Maja](#)
Cc: [Budinski Michael](#)
Subject: Email report-WPR20LA098 (Residue removed from aircraft fuselage)
Date: Tuesday, August 10, 2021 11:52:22 AM

Maja,

The residue removed from the lower fuselage of the accident aircraft was submitted to the Materials Laboratory for examination. The material was examined using a Fourier Transform Infrared (FTIR) spectrometer with a diamond attenuated total reflectance (ATR) accessory in accordance to ASTM E1252-98 (American Society for Testing Materials E1252-98: *Standard Practice for General Techniques for Obtaining Infrared Spectra for Qualitative Analysis and American Society for Testing Materials*). The spectrometer was used to collect and process infrared wavelength absorbance spectra of the unknown material.

The spectrum contained spectral peaks that corresponded to particular functional groups found within molecular structure of the unknown material. The presence of a broad peak between $\sim 3600\text{ cm}^{-1}$ is indicative of a silicon interference bond. A broad peak at $\sim 3080\text{ cm}^{-1}$ is indicative of a nitrogen-hydrogen bond. A doublet peak at $\sim 2923\text{ cm}^{-1}$ and $\sim 2850\text{ cm}^{-1}$ corresponds to a carbon-hydrogen stretching bond. A single peak at $\sim 1630\text{ cm}^{-1}$ is indicative of a carbon-nitrogen stretching bond. A single medium peak at $\sim 1427\text{ cm}^{-1}$ is indicative of a carbon-hydrogen (2) bending bond. A single medium peak at $\sim 1004\text{ cm}^{-1}$ is indicative a carbon-oxygen stretching bond and A single medium peak at $\sim 873\text{ cm}^{-1}$ is indicative of a silicon-oxygen bond.

A spectral library comparison search was performed on the residue spectrum. The library search found spectral matched to several clays. The search and the combination of spectral peaks indicate that the residue consisted mainly of soil. The presence of any hydrocarbons such as fuel or oil may have been masked by the strong spectrum of the soil present in the sample.

If you have any questions, please let me know.

Nancy B McAtee
Senior Chemist
RE-30